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Non Invasive Imaging (Echocardiography, Nuclear, PET, MR and CT)

FRACTIONAL MYOCARDIAL MASS: A NEW INDEX FOR DIAGNOSIS AND TREATMENT OF CORONARY ARTERY DISEASE

Poster Contributions
Poster Hall B1
Sunday, March 15, 2015, 3:45 p.m.-4:30 p.m.

Session Title: Non Invasive Imaging: CT/Multimodality, Angiography, and Non-CT Angiography
Abstract Category: 16. Non Invasive Imaging: CT/Multimodality, Angiography, and Non-CT Angiography
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Authors: *Hyung Yoon Kim, Eun kyoung Kim, Sung Mok Kim, Young Bin Song, Joo-Yong Hahn, Seung-Hyuk Choi, Hyeon-Cheol Gwon, Sang Hoon Lee, Yeon Hyeon Choe, Jae K. Oh, Jin-Ho Choi, Samsung Medical Center, Seoul, South Korea*

Background: Quantification of the myocardial mass by coronary computed tomography angiography (CCTA) has become available. The aim of this study was to estimate the influence of the amount of fractional myocardial mass on the diagnostic performance of %DS to predict functional ischemia defined as fractional flow reserve (FFR) ≤ 0.80.

Methods: CCTA and FFR were performed to evaluate 196 lesions in 162 patients. Total and fractional myocardial mass was estimated using CCTA measurements based on allometric scaling method. And the fractional myocardial mass was defined as each myocardial mass per each supply vessel. Bivariate analysis was performed to estimate correlation between FFR and %DS in accordance with the amount of fractional myocardial mass.

Results: Ischemia was observed in 96 lesions. The mean FFR value was 0.63 ± 0.13. FFR values were significantly correlated to CCTA parameters of stenosis severity only in the groups with a large amount of fractional myocardial mass (FMM > 38.6g in the 3rd quartile, MLD: r=0.43, P<0.005; %DS: r=-0.30, P<0.05). In the groups with a smaller amount of fractional myocardial mass than the third quartile, no significant correlation was found between FFR and %DS (r=0.02, P=0.80).

Conclusion: The larger the amount of fractional myocardial mass, the better the correlation between FFR and %DS was observed. In conclusion, functional severity of coronary artery stenosis depends on the amount of fractional myocardial mass of the index vessel.